

ABSTRACT OF THE DISCLOSURE

Disclosed are a processing method and apparatus for removing a native oxide film from the surface of a subject to be treated. In this method and apparatus, 5 gas generated from N₂, H₂ and NF₃ gases is reacted with the surface of the subject to degenerate the native oxide film into a reactive film. If the subject is heated to a given temperature, the reactive film is sublimated and thus the native oxide film is removed. 10 Plasma is generated from the N₂ and H₂ gases and then activated to form an activated gas species. The NF₃ gas is added to the activated gas species to generate an activated gas of these three gases. In the step of forming the reactive film, the subject is cooled to not 15 higher than a predetermined temperature by a cooling means. In the step of sublimating the reactive film, the subject is lifted up to a predetermined heating position. Also disclosed is a cluster system which includes the treatment apparatus of the present 20 invention and other apparatuses and which is capable of carrying a subject to be treated in an unreactive atmosphere.